Appendix I

DELINEATION OF RIPARIAN AREAS, RIPARIAN CORRIDORS, AND STREAM TYPES

Riparian Area Definition and Delineation

The Forest Service Manual provides for the identification and delineation of riparian areas based on soil characteristics, hydrology, landform, and vegetation (FSM 2526.05). The following definitions apply:

> **Riparian Areas** - Geographically delineable areas with distinctive resource values and characteristics that are comprised of the aquatic and riparian ecosystems.
>
> **Aquatic Ecosystems** - Stream channels, lakes, estuary beds; water; biotic communities; and the habitat features that occur therein.
>
> **Riparian Ecosystems** - A transition area between the aquatic ecosystem and the adjacent terrestrial ecosystems identified by soil characteristics or distinctive vegetation communities that require free or unbound water.

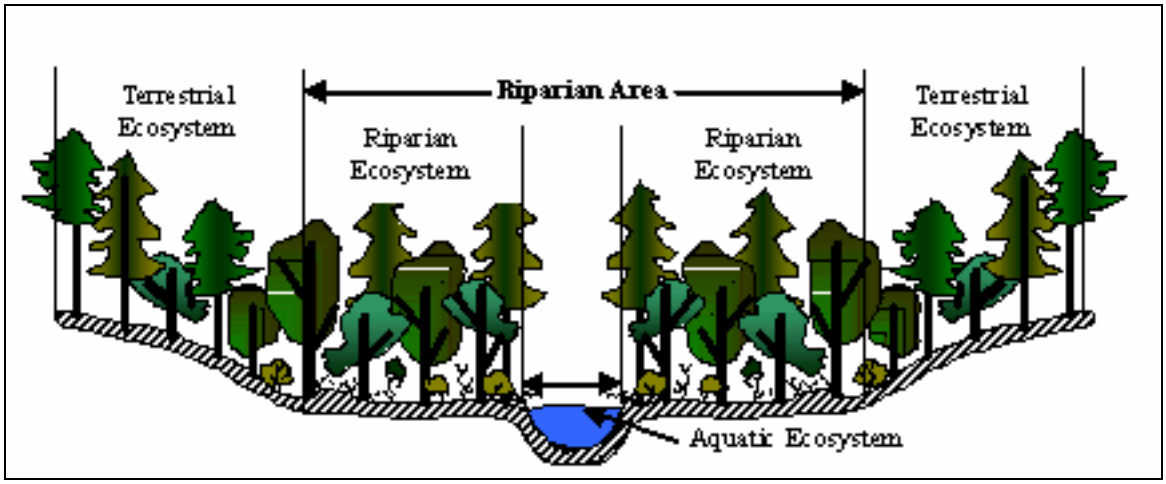
The riparian area definition includes the aquatic ecosystem and that portion of the terrestrial ecosystem substantially affected by the presence of surface and groundwater. Riparian areas consist of perennial and intermittent streams, ponds, lakes (reservoirs), waterholes, wetlands, and adjacent lands with soils, vegetation, and landform indicative of high soil moisture or frequent flooding. They have variable widths that are determined by ecologically significant boundaries rather than arbitrary distances. No single feature is used to delineate these ecosystems. In general, some characteristics common to riparian areas on the Hoosier National Forest include:

- Soils – soils formed in alluvial material, stratified sand, silt, and clay (often with thick, dark surfaces) some underlain with gravel or course fragments of sandstone.
- Landforms – alluvial valleys, their floodplains and terraces. Lakes and ponds with their associated beaches, shorelines, marshes, and swamps.
- Vegetation – Typical Hoosier National Forest riparian area species include sycamore, green ash, American elm, red elm, hackberry, box elder, silver maple, black walnut, river birch, and a variety of sedges, grasses and willows.

Figure I.1 shows a simplified schematic of the riparian area on the Hoosier National Forest.

Figure I.1

SIMPLIFIED SCHEMATIC OF A RIPARIAN AREA AS DEFINED BY FSM 2526.02



Riparian areas often need to be managed in a broader, ecological context. Lands that are not technically part of the riparian area often influence these areas. For example, soil erosion from a steep slope adjacent to a stream could adversely affect the riparian area, even though much of the slope is technically outside of the riparian ecosystem defined by soils, hydrology, and vegetation.

The goal in delineating these corridors is to maintain a stable forest floor to filter sediment and other pollutants before runoff enters the stream, and to protect riparian habitat and species. Riparian corridors are not excluded from management activities, but rather zones where the application of mitigation measures and forethought must be applied to ensure water quality and riparian values are protected.

The Riparian Corridor

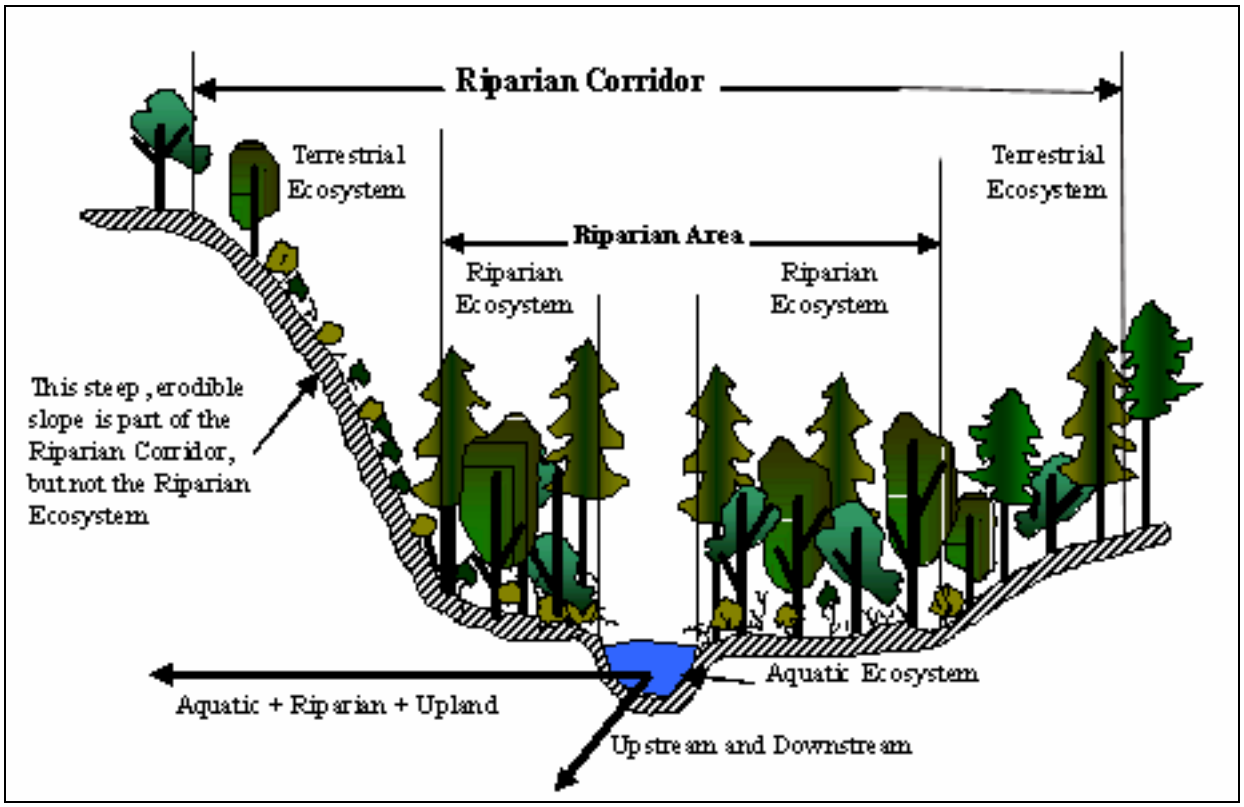
The Forest Service Region 9 terminology for the “adjacent terrestrial area” is riparian corridor.

The riparian corridor encompasses riparian areas, as well as adjacent associated upland components. A riparian area is functionally defined as a three-dimensional ecotone of interaction that includes both terrestrial and aquatic ecosystems. It is identified on the ground as one of the following: a perennial stream or other perennial water body or intermittent stream, as well as the associated soils, vegetation, and hydrology. It extends down into the ground water, up above the canopy, outward across the flood plain, up the near-slopes that drain into the water, laterally into the terrestrial ecosystem, and along the watercourse at a variable width (Ilhardt *et al.* 2000).

The Hoosier National Forest designates a “riparian corridor” as shown in Figure I.2 below.

Figure I.2

SIMPLIFIED SCHEMATIC OF THE RIPARIAN CORRIDOR
AS RECOMMENDED BY REGION 9

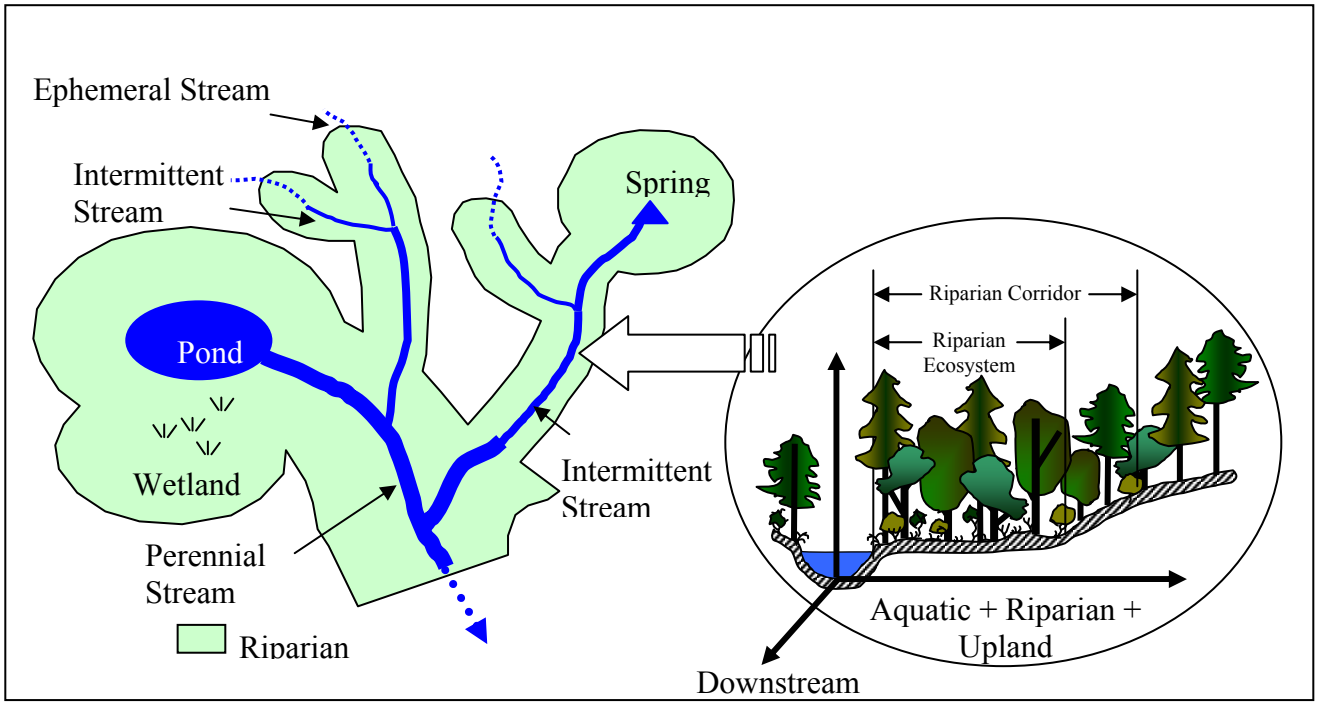


The riparian corridor includes the riparian area along all perennial and intermittent streams with defined, recognizable channels. Where necessary, the riparian corridor also includes any adjacent terrestrial areas needed to protect or restore riparian function. The example in Figure I.2 illustrates how a steep, erodible slope that could adversely affect the riparian area or the stream is included in the riparian corridor, even though it is not technically part of the riparian area.

Riparian corridors also include areas around ponds, lakeshores, wetlands, waterholes, springs, and seeps. Figure I.3 illustrates how the riparian corridor includes wetlands, waterholes, springs, seeps, perennial streams, and those portions of intermittent streams that have a defined, recognizable channel.

Figure I.3

REPRESENTATION OF A RIPARIAN CORRIDOR



Ephemeral streams with recognizable channels will have a 25 foot minimum riparian corridor as measured from each channel or bank.

An **interrupted stream** (a watercourse that goes underground and then reappears) will be measured as if the stream were above ground.

For **braided streams**, the outermost braid will be used as the water's edge.

For **ponds, small lakes, waterholes, wetlands** (including associated seeps or springs), and other water bodies, the measurement begins at the ordinary high water mark.